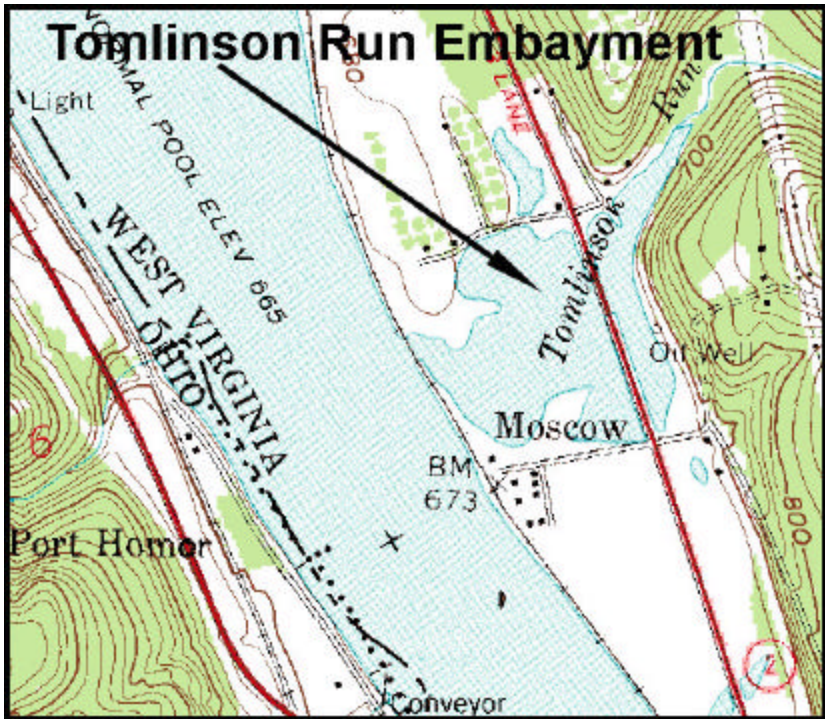


TOMLINSON RUN EMBAYMENT (WV-52)

1.0 Location

The proposed Tomlinson Run Embayment project area is located in Hancock County, West Virginia approximately 1.6 miles upstream from the New Cumberland Locks and Dam (the site is approximately 4 miles north of the small community of New Cumberland, West Virginia). The project site is within the Ohio River New Cumberland Pool at Ohio River Mile (ORM) 52.9. The project site is within the jurisdiction of the Pittsburgh District, U. S. Army Corps of Engineers (USACE).



2.0 Project Goal, Description, and Rationale

The primary goals of the Tomlinson Run Embayment project are to improve the spawning habitat in the embayment by dredging the embayment of accumulated silt. The dredging of the embayment will enhance the spawning habitat for smallmouth bass and other fish species.

The embayment will be dredged to produce a gradual grade from the shoreline to a maximum of 10-12 feet in the central portions of the embayment.

Dredge material would be placed in an agricultural field south of the embayment.



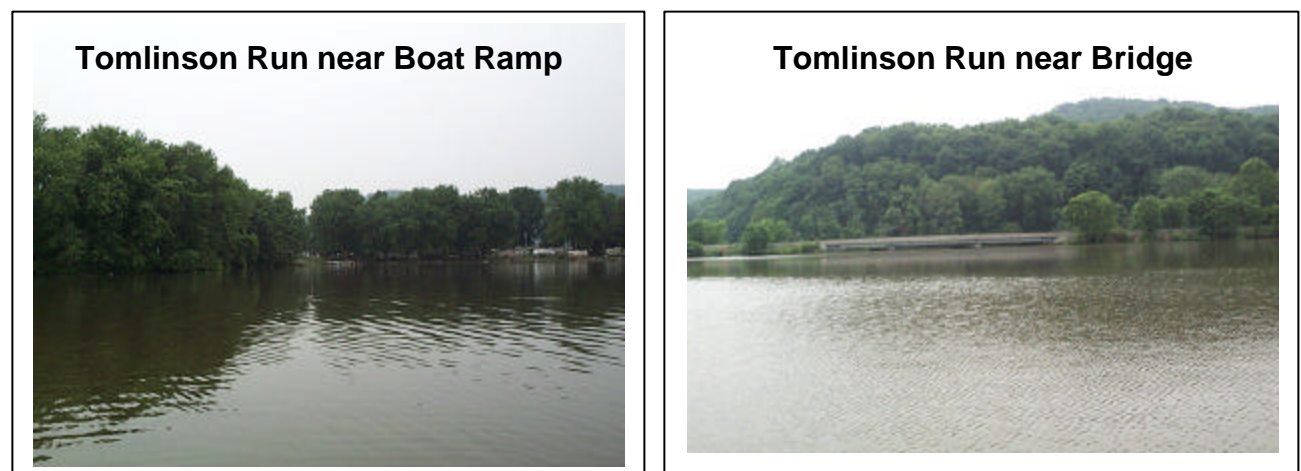
3.0 Existing Conditions

Terrestrial/Riparian Habitat: The proposed Tomlinson Run embayment site contains a variety of habitats. Agricultural land is present along the northern and southern portions of the embayment. A narrow band of riparian woodlands surrounds much of the embayment. Mowed lawns also occur along some of the northern portions of the embayment.



Aquatic Habitats: Tomlinson Run embayment is a large embayment with water depths ranging from 2 to 8 feet deep. Near the mouth of the embayment water depths are approximately 10-12 feet. Soft substrates are common in the embayment and include silt, mud, and clay. The embayment lacks any noticeable current and is reported by West Virginia DNR staff to be an important spawning location for smallmouth bass.

Within Tomlinson Run upstream of the embayment, the Run is more creek like in nature with small stream fish species such as creek chub, blacknose dace, and northern hog sucker common (WVDNR, 1980).



Wetlands: The Tomlinson Run site is a riverine embayment site. Wetlands in the vicinity of the project are generally restricted to the bottomland hardwoods associated with the riparian zone adjacent to the embayment and the Ohio River.

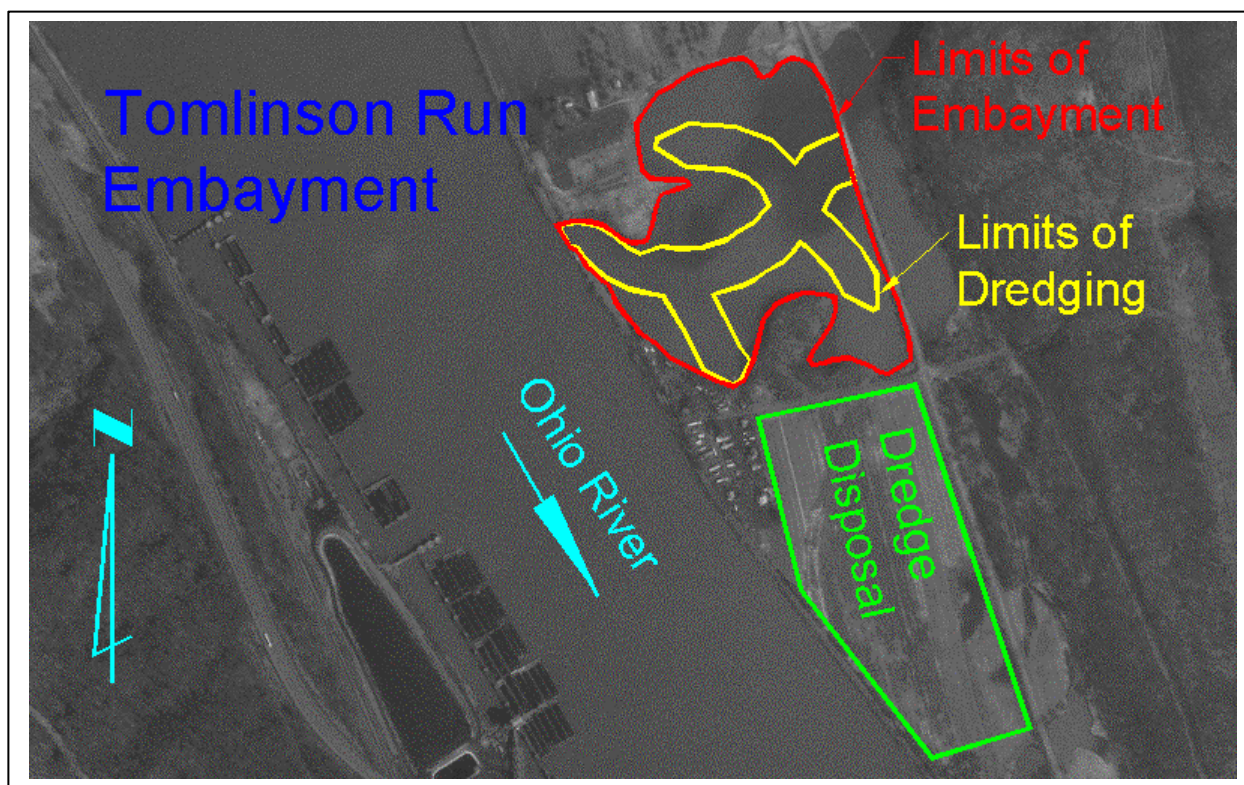
A potential small jurisdictional wetland may be present south of the embayment within the dredge material placement area.



Federally-Listed Threatened and Endangered Species: The U.S. Fish and Wildlife Service (USFWS) has indicated that one federally threatened species, the bald eagle (*Haliaeetus leucocephalus*), is known from Hancock County, West Virginia.

Bald eagles may utilize the area around Tomlinson Run, as well as the area downstream of the nearby New Cumberland Locks and Dam, for feeding and resting areas during migrations. It is not known to nest within the project area.

4.0 Project Diagram



5.0 Engineering Design, Assumptions, and Requirements

5.1 Existing Ecological/Engineering Concern

The Tomlinson Run embayment has filled with sediments due to several factors. These factors include: raised water levels from the impoundment of the New Cumberland Pool; deposition of Ohio River silt-laden waters, especially during flood events; wave action from barge traffic; and headwater sediments from the Tomlinson Run watershed.

5.2 Embayment Dredging

Maintenance dredging of the mouth of the embayment is required to provide deep water connectivity to the remainder of the embayment and to provide a suitable depth for boater access. An estimated 93,100 cubic yards of silty-clay material would be dredged to restore depths of 9-12 feet in four distinct channels in the embayment. The bottom width of the channel would be 40 feet, with 10:1 side slopes. A dredge disposal site is adjacent to the embayment, with a natural swale. A small levee, 3.5 feet high and 700 feet in length, would be constructed at the designated disposal site for dewatering.

5.3 Planning/Engineering Assumptions

- ◆ A small auger head dredge would be used, and the material would be pumped directly to the disposal site.
- ◆ Bottom side slopes will be reshaped to a 10:1.
- ◆ All the material required for the levee would be taken from on site.
- ◆ A 2,320 gallons per minute (gpm) centrifugal pump would be used for dewatering. Dewatering would commence 18 days after dredging begins to prevent the dewatering basin from exceeding capacity.

6.0 Cost Estimate (Construction)

Dredging - Engineering costs for the proposed project are contained on Table 1. A detailed MCACES cost estimate for the proposed project is included in Appendix C.

Table 1. Engineering Costs.	
Item	Cost
Dredging	\$116,800
Levee	\$9,200
Dewatering	\$51,400
Mobilization	\$15,200
TOTAL	\$192,600

7.0 Schedule

Tomlinson Run Embayment Dredging: The estimated construction time is shown on Table 2.

Table 2. Construction Schedule.	
Item	Time
Dredging	129 Days
Levee	6 Days
Dewatering	56 Days
Mobilization	4 Days
TOTAL	195 Days

8.0 Expected Ecological Benefits

Terrestrial/Riparian Habitats: The impacts of the Tomlinson Run Embayment rehabilitation/dredging project would be primarily in-stream. There would be no reasonably foreseeable beneficial impacts to terrestrial/riparian resources as a result of implementing the proposed project.

Aquatic Habitats: Long-term beneficial impacts to aquatic resources would be anticipated as a result of implementing the proposed project. Dredging portions of Tomlinson Run to increase depth and habitat diversity would result in long-term beneficial impacts to fishes due to the improved/deepened access to the embayment. Fishes would be allowed free access to the embayment, especially during low flow periods. Habitat requirements for fishes change seasonally and improved access to the embayment would be considered beneficial. Restoring/increasing the depths of the embayment would provide over-wintering and spawning habitat for fishes, especially sport fish such as smallmouth bass.

Wetlands: There would be no beneficial impacts to jurisdictional wetlands as a result of implementing the proposed project.

Federally-Listed Threatened and Endangered Species: There would be no reasonably foreseeable beneficial impacts to the bald eagle as a result of implementing the proposed project.

Socioeconomic Resources: There would be short-term and long-term beneficial impacts to socioeconomic resources as a result of implementing the proposed project. The short-term beneficial impacts would be related to costs and local expenditures associated with the construction/dredging of the embayment. Long-term socioeconomic benefits would be realized through improved recreational fishing opportunities. Long-term indirect beneficial impacts will be realized through local expenditures for fishing tackle, food, gas, and other associated needs.

9.0 Potential Adverse Environmental Impacts

Terrestrial/Riparian Habitats: There would be short-term adverse impacts to terrestrial/riparian resources as a result of implementing the proposed project. There would be short-term adverse impacts to terrestrial species from construction-related noise and disturbance. There would be short-term adverse impacts to the land south of the embayment which would serve as the dredge material disposal site. Adverse impacts to this area would be considered short term, because it is assumed that the site can be re-farmed following the dewatering and grading of the spoil material.

Aquatic Habitats: There would be a potential for adverse affects to aquatic species, especially immobile benthic invertebrates and young-of-the-year fishes during the dredging of Tomlinson Run embayment. Localized populations of benthic invertebrates could be directly disturbed during the construction operation. In addition, sensitive aquatic species immediately downstream from the site could be adversely impacted by degraded water quality associated with displaced sediments, however these adverse impacts to aquatic species would be short term.

Wetlands: Potential long-term adverse impacts to jurisdictional wetlands as a result of implementing the proposed project would occur if jurisdictional wetlands are determined to be present on the dredge material disposal site. A small portion of the field adjacent to Tomlinson Run selected for dredge material placement maybe considered jurisdictional wetlands. The function of these wetlands would be removed by the disposal of dredge material.. The loss of

jurisdictional wetlands would, however, be mitigated at an approved wetland mitigation site on or near Tomlinson Run.

Federally-Listed Threatened and Endangered Species: There would be no reasonably foreseeable adverse impacts to the bald eagle as a result of implementing the proposed project.

Socioeconomic Resources: Minor short term adverse socioeconomic impacts could occur if the current agricultural activities on the dredge disposal site are disrupted as a result of the proposed project.

10.0 Mitigation

Minor impacts associated with site restoration may occur during the construction of this project, however, no significant adverse impacts are expected. The use of best management practices and proper construction techniques would minimize adverse water quality impacts.

Jurisdictional wetlands (if present at the dredge material disposal site) would be adversely impacted (removed) during the dredging of Tomlinson Run. Mitigation via the creation of new wetlands could occur on or near the site in conjunction with the construction activities in the embayment.

11.0 Preliminary Operation and Maintenance Costs:

Maintenance Dredging Operation and Maintenance costs are summarized on Table 3.

Table 3. Operation and Maintenance Costs		
Maintenance	Frequency	Costs
Maintenance Dredging	25 years	\$48,000

12.0 Potential Cost Share Sponsor(s)

West Virginia Department of Natural Resources
Bass Anglers Sportsman Society

13.0 Expected Life of the Project

It is anticipated that the dredging operation would provide meaningful depths for fishes for approximately 25-30 years before additional dredging would be necessary.

14.0 Hazardous, Toxic, and Radiological Waste Considerations

Potential impacts of hazardous, toxic, and radiological waste (HTRW) at this concept site were visually assessed during a site visit on June 14, 1999.

Site Inspection Findings

The Ohio River flows from north-northwest to south-southeast past the project site at Tomlinson Run. The small town of Moscow, WV in Hancock County is located at the mouth of Tomlinson Run.

The following environmental conditions were considered when conducting the June 14, 1999 project area inspection:

- ◆ Suspicious/Unusual Odors;
- ◆ Discolored Soil;

- ◆ Distressed Vegetation;
- ◆ Dirt/Debris Mounds;
- ◆ Ground Depressions;
- ◆ Oil Staining;
- ◆ Above Ground Storage Tanks (ASTs);
- ◆ Underground Storage Tanks (USTs);
- ◆ Landfills/Wastepiles;
- ◆ Impoundments/Lagoons;
- ◆ Drum/Container Storage;
- ◆ Electrical Transformers;
- ◆ Standpipes/Vent pipes;
- ◆ Surface Water Discharges;
- ◆ Power or Pipelines;
- ◆ Mining/Logging; and
- ◆ Other.

Agricultural areas extend north and south of the site and a marina is located to the south. There are residential houses and trailers in the area. None of the environmental conditions listed above were observed in the project area.

15.0 Property Ownership & River Access

Selected data on properties immediately adjacent to the concept site was collected from the county courthouse of the respective county of each site. Data collected included map and parcel identification number, property owner's name and mailing address, acreage of the potentially affected parcel, and market value of the parcel. This procedure involved obtaining a plat or parcel map of the site and surrounding area which identified each parcel with a corresponding map and parcel number. The map/parcel identification number was subsequently used to determine the property owner's name and mailing address from records in the County Assessor's or County Auditor's office.

The market value of each parcel as contained in the property tables reflects the assessed valuation to supposedly market value ratio used by the State for taxation purposes. These assessed values reflect 1998 assessments. The assessed valuation ratio is 60 percent for West Virginia.

The above ratio was used to approximate the market value of each property. However, in many instances the resultant market value calculated under the above procedure is considerably below the actual value of the land in the real market. Local real estate brokers could provide a more accurate estimate of actual land values.

The collected property data indicate that the adjacent land is owned by private entities. The proposed project will require agreements with local landowners for dredging equipment access to the site as well as for dredge material disposal.

Table 4. Property Characteristics				
Site Name: Tomlinson Run Watershed Project				
Location: Hancock County, West Virginia				
Map/Parcel Number	Owner	Mailing Address	Market Value	Acreage
C17 (p.o. C14/12)	Stewart Cowl et al	RR 2, Box 152 New Cumberland, WVA 26047	* \$ 100,400	139.42
C17\1	William Mull	RR 3, Box 41F Weirton, WVA 26062	\$ 300	< 1 acre
C17\2	(same)	(same)	\$ 800	< 1 acre
C17\3	Thomas Szymanek	3741 Lindberg Way Weirton, WVA 26062	* \$ 29,200	5.22
C18\80	Harriet McEuen et al	C/o Eleanor Fox P.O. Box 2250 Weirton, WVA 26062	\$ 5,700	195.00
* Denotes improvements on property.				

16.0 References

Sheaffer, 1986	Sheaffer, W.A. and J.G. Nickum. 1986. Backwater areas as nursery habitats for fishes in Pool 13 of the Upper Mississippi River. Hydrobiology No. 136 pp. 131-140.
Sheehan, 1994	Sheehan, R.J., W.M. Lewis, and L.R. Bodensteiner. 1994. Winter habitat requirements and overwintering of riverine fishes. Fisheries Research Laboratory, Southern Illinois University, Carbondale, Illinois. Final Report F-79-R-6.
WVDNR, 1980	West Virginia DNR. 1980. Stream Survey Data Form, Tomlinson Run. Cat. No. 1401.
USFWS, 1999	U.S. Fish and Wildlife Service, July 6, 1999. Federally Listed Endangered and Threatened Species in West Virginia.

APPENDIX A Threatened & Endangered Species

APPENDIX B Plan Formulation and Incremental Analysis Checklist**Project Site Location:**

The proposed Tomlinson Run Embayment project area is located in Hancock County, West Virginia approximately 1.6 miles upstream from the New Cumberland Locks and Dam (the site is approximately 4 miles north of the small community of New Cumberland, West Virginia). The project site is within the Ohio River New Cumberland Pool at Ohio River Mile (ORM) 52.9. The project site is within the jurisdiction of the USACE Pittsburgh District.

Description of Plan selected:

The primary goals of the Tomlinson Run Embayment project are to improve the spawning habitat in the embayment by dredging the embayment of accumulated silt. The dredging of the embayment will enhance the spawning habitat for smallmouth bass and other fish species.

The embayment will be dredged to produce a gradual grade from the shoreline to a maximum of 10-12 feet in the central portions of the embayment. Dredge material would be placed in an agricultural field south of the embayment.

Alternatives of the Selected Plan:

Smaller Size Plans Possible? **Yes** and description

Reduce the amount of dredging.

Larger Size Plan Possible? **Yes** and description

Increase the amount of dredging.

Other alternatives? **No**

Restore/Enhance/Protect Terrestrial Habitats? ☐ No Objective numbers met ☐

Restore, Enhance, & Protect Wetlands? ☐ No Objective numbers met ☐

Restore/Enhance/Protect Aquatic Habitats? ☐ Yes Objective numbers met ☐ A1

Type species benefited: Variety of fish species including smallmouth bass.

Endangered species benefited: None

Can estimated amount of habitat units be determined: Approximately 12.5 acres of the embayment will be restored

Plan acceptable to Resources Agencies?

U.S. Fish & Wildlife Service?

State Department of Natural Resources? Yes – West Virginia DNR

Plan considered complete? Connected to other plans for restoration?

Real Estate owned by State Agency? No Federal Agency? No

Real Estate privately owned? Yes

If privately owned, what is status of future acquisition Acquisition / agreements required.

Does this plan contribute significantly to the ecosystem structure or function requiring restoration? What goal or values does it meet in the Ecosystem Restoration Plan?

Restoration of the embayment provides habitat diversity, over-wintering habitat, spawning habitat, and off-channel velocity shelters for fishes.

Is this restoration plan a part of restoration projects planned by other agencies? (i.e. North American Waterfowl Management Plan, etc.)

No.

In agencies opinion is the plan the most cost effective plan that can be implemented at this location?

Can this plan be implemented more cost effectively by another agency or institution?

Yes / No

Who:

From an incremental cost basis are there any features in this plan that would make the project more expensive than a typical project of the same nature? For embayment type plans is there excessive haul distance to disposal site? More expensive type disposal? Spoil that requires special handling/disposal?

Potential Project Sponsor:

Government Entity: _____

Non-government Entity _____

Corps Contractor _____ Date _____

U.S. Fish & Wildlife Representative _____ Date _____

State Agency Representative _____ Date _____

U.S. Army Corps of Engineers Representative _____ Date _____

Terrestrial Habitat Objectives

- T1 Riparian Corridors
- T2 Islands
- T3 Floodplains
- T4 Other unique habitats (canebrakes, river bluffs, etc.)

Wetland Habitat Objectives

- W1 Forested Wetlands: Bottomland Hardwoods
- W2 Forested Wetlands: Cypress/Tupelo Swamps and other unique forested wetlands
- W3 Scrub/Shrub Emergent Wetlands: isolated from the river except during high water and contiguous (includes scrub/shrub wetlands in embayments and island sloughs)

Aquatic Habitat Objectives

- A1 Backwaters (sloughs, embayments, oxbows, bayous, etc.)
- A2 Riverine submerged and aquatic vegetation
- A3 Sand and gravel bars
- A4 Riffles/Runs (tailwaters)
- A5 Pools (deep water, slow velocity, soft substrate)
- A6 Side Channel/Back Channel Habitat
- A7 Fish Passage
- A8 Riparian Enhancement/Protection

APPENDIX C Micro Computer-Aided Cost Engineering System (MCACES)